Chronic Disease Indicators: Indicator Definition

Hospitalization for cerebrovascular accident or stroke

Category:	Cardiovascular Disease
Demographic Group:	All resident persons.
Numerator:	Hospitalizations (not unduplicated*) with principal diagnosis International Classification of Diseases (ICD)-9-CM codes 430–434 and 436–438 among residents during a calendar year. When possible, include discharges for residents who are hospitalized in another state.
Denominator:	Midyear resident population for the same calendar year.
Measures of Frequency:	Annual number of hospitalizations. Annual hospitalization rate — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1†) — with 95% confidence interval.
Time Period of Case Definition:	Calendar year.
Background:	During 2001, stroke was the third leading cause of death in the United States, accounting for approximately 164,000 deaths.
Significance :	Modifiable risk factors for stroke include behaviors (e.g., tobacco use, physical inactivity, and improper nutrition) and health status (e.g., untreated hypertension, hyperlipidemia, overweight, or diabetes). Approximately 26% of stroke deaths in the United States are attributable to high blood pressure and 12% to smoking. Substantial differences in stroke death rates and preventive measures exist by race, age, sex, place of residence, and other demographic factors. Historically, the southeastern United States has had high stroke death rates.
Limitations of Indicator:	Although the two major types of stroke — hemorrhagic (approximately 10% of stroke) and ischemic (approximately 65% of stroke) — share certain risk factors, their treatment varies. Consequently, accurate interpretation of trends or patterns in total mortality from cerebrovascular disease is difficult. Because cerebrovascular disease has a long latency period, years might pass before changes in behavior or clinical practice patterns affect cerebrovascular disease morbidity and mortality.
Data Resources:	State hospital discharge data (numerator) and population estimates from the U.S. Bureau of the Census or suitable alternative (denominator).
Limitations of Data Resources:	Diagnoses listed on hospital discharge data might be inaccurate. Practice patterns and payment mechanisms could affect decisions by health-care providers to hospitalize patients. Residents of one state might be hospitalized in another state and not be reflected in the first state's hospital data set. Multiple admissions for an individual patient can falsely elevate the number of persons hospitalized. Because state hospital discharge data are not universally available, aggregation of state data to produce nationwide estimates will be incomplete.
Healthy People 2010 Objectives:	No objective.

* The term not unduplicated refers to the fact that one person might account for multiple admissions. † See Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20 http://www.cdc.gov/nchs/data/statnt/statnt20.pdf